



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-0435

ROBERT J. MARTINEAU, JR.
COMMISSIONER

BILL HASLAM
GOVERNOR

May 13, 2013

Via First Class Mail and Electronic Mail to Nick.Abraham@mail.house.gov

The Honorable John Shimkus c/o Nick Abraham, Legislative Clerk
Committee of Energy and Commerce
House of Representatives
One Hundred Thirteenth Congress of the United States
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Shimkus,

This letter responds to your request of April 29, 2013, which included additional questions from Members pertaining to my testimony on behalf of the Environmental Council of the States (ECOS) at the Thursday, April 11, 2013 hearing on a discussion draft entitled "The Coal Ash Recycling and Oversight Act of 2013." Attached please find the questions and my responses. Thank you again for the opportunity to testify before the Subcommittee on this important topic.

Please feel free to contact me should you have any additional questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Robt Martineau, Jr." in a cursive style.

Robert J. Martineau, Jr.
Commissioner

Secretary-Treasurer
Environmental Council of the States

Attachment

Commissioner Robert J. Martineau, Response to Questions

1. The Honorable John Shimkus Questions

a. Do you think that State officials are in the best position to determine the specifics regarding dam design and construction? Please explain.

Yes. The primary reason is that states have been regulating dam safety for decades, with a few exceptions such as hydro-powered dams. States have had a long time to develop regulations for dams, and many states use guidance by federal agencies such as FEMA to help set state standards. It's important to remember that dam design and construction, in general, encompasses and raises issues well beyond coal ash regulation. States are in the best position to know about and understand the unique circumstances that may be at play with regard to dam structures, including surface impoundments that receive Coal Combustion Residuals (CCR) in their own state.

b. The incident at Kingston precipitated the Discussion Draft and the Proposed Rule- can you give us a summary of the lessons learned and what Tennessee Department of Environment and Conservation has done in the wake of Kingston?

Summary of lessons learned:

- CCR does not present a long-term toxicological threat to public health and the environment when managed properly. The most significant threat to humans is when ash particles become airborne, presenting inhalation and skin irritation problems for people who are exposed to it;
- CCR surface impoundments and landfills should be sited, designed, and constructed similar to RCRA Subtitle D Landfills and should have regular inspections to allow compliance issues identified to be addressed quickly;
- Existing CCR surface impoundments and landfills should be evaluated for structural stability and integrity. Structural deficiencies should be corrected and there should be consideration of closing those structures, with the most problematic structures closed first; and
- CCR can and should be managed as a solid waste. It can be beneficially reused and the cost to regulate as a hazardous waste is approximately ten times greater than regulation as a solid waste. There is not enough hazardous waste disposal space for the amount of material generated.

TVA had engineering companies search for the cause of the Kingston failure. TDEC staff and TDEC consultants reviewed the information produced. The TVA report discussed two reasons for failure:

- A slime layer between the bottom of the ash pile (about 90% fly ash and 10% bottom ash) and the top of the subsurface native material; and
- The landfill did not drain properly causing the ash to have a greater than expected level of water content.

As a part of TDEC's effort to determine the cause of the TVA Kingston ash release, an Advisory Board was convened to review TVA's root cause investigation to determine whether sound engineering principles were used in construction of the landfill; to review TVA's structural evaluations of other TVA facilities in Tennessee to ensure the use of sound engineering principles;

and to provide recommendations to TDEC for the future safe management of coal ash. The Advisory Board consisted of members from TDEC, EPA, the University of Tennessee engineering department, and Benham Consultants.

The root cause investigation that TVA commissioned concluded that four factors contributed to the dredge cell failure:

- The geometry and setbacks utilized in the placement of the wet ash;
- Increased loads due to higher fill;
- Unusually weak silt/ash slime foundation; and
- Hydraulically placed loose wet ash.

Tennessee's Advisory Board did not specifically agree or disagree with these conclusions. The Board concluded there was a lack of coordinated engineering design for raising the dredge cells over a period of decades and the properties of the coal ash were not adequately understood.

From TDEC's perspective, the most significant factor was the method of construction known as a dredge cell and the weak material properties of the ash used for construction. Loosely deposited sluiced fly ash, without the benefit of secondary consolidation, has been shown to perform in a manner more consistent with that of unconsolidated loose sand and silt. In addition, the weakness of the foundation beneath the dredge cells was a significant factor which contributed to the failure. Once the structural integrity of the landfill was compromised and the breach occurred at the north boundary of the landfill, the disposed ash was released. Because the ash in the landfill had a high moisture content, the ash behaved as a liquid and quickly spread across a large area covering the land surface in the immediate area and entering the Emory River and its tributaries. The effect was similar to pouring out a bucket of very thin cement mix; basically the released ash spread widely due to the amount of "wet" ash and the height of the landfill. The released ash followed the laws of gravity and moved to into the lowest surrounding areas.

i. Has the State analyzed the structural integrity of other disposal units and/or added additional requirements to the existing regulations?

TDEC issued two Commissioner's Orders to TVA after the Kingston incident. The first order required TVA to take immediate action to begin clean-up of the problems caused by the failure. The second order required TVA to investigate the structural integrity of the six other coal ash storage areas, both landfills and surface impoundments. TVA hired an environmental consulting company specializing in evaluating the structural stability of landfills and surface impoundments. TDEC and EPA approved of the approach taken by TVA to evaluate these structures. EPA also worked with the federal Bureau of Mines and used their expertise to assist with the structural stability analysis.

All parties agreed that a "dam safety factor" of 1.5 should be the standard for structural integrity for these structures. TVA found deficiencies at some of its facilities. TVA took actions to improve the structural stability of the surface impoundments and landfills that did not meet the 1.5 dam safety factor. The TVA Johnsonville surface impoundment was the coal ash storage facility that required the most extensive repair. While the TDEC Order required TVA to complete this work for all TVA surface impoundments and landfills in Tennessee, TVA did perform the analyses for its facilities in all states.

Since the TVA Kingston ash release, TDEC requires that any CCR waste that is to be disposed of in an existing Tennessee landfill be disposed of as a special waste, the landfill must have a synthetic liner and leachate collection system and TDEC and the landfill operator must agree to take the waste. Any new landfill or expansion of an existing landfill that will receive CCR waste must meet our Class II Industrial Waste Landfill requirements and standards which includes a geologic assessment, geologic buffer, synthetic liner, a leachate collection system, operations manual, closure plan, post closure plan and ground water monitoring. This is same criteria as a RCRA Subtitle D landfill, however, the Commissioner, may waive some permit requirements if the requirement does not provide additional public health and environmental protection.

In 2009, Tennessee amended the Tennessee Solid Waste Management Act so that it now requires any new landfill or any expansion of an existing landfill to have a synthetic liner and an approved “cap” before the landfill is closed.

TDEC has not made further changes to its regulation of CCRs, choosing to wait until EPA issues a final rule to make any additional changes. TDEC believes the changes it has made in policy and statute (as stated above) provide a greater level of public health and environmental protection than before the TVA Kingston ash release.

c. As a regulatory official, how do you define backstop authority? Does the Discussion Draft have a federal backstop?

When discussing the state operation of a delegated federal program, the federal role is usually reduced in favor of the day-to-day operations of the program at the state level. Federal programs set minimum standards states must adopt to become a delegated program and establish a minimum “level playing field” among the states. Also, there are times when complex, technical issues such as on a particular enforcement case can overwhelm a single state’s ability to respond. For these reasons, states believe that a federal backstop is a necessary and useful presence. The Discussion Draft we addressed at the hearing provides what we would define as backstop authority in at least three ways: (1) EPA will operate the program in the event a state chooses not to; (2) EPA will conduct oversight of state programs and can, if necessary, assume control of the state program if the state cannot or will not operate it consistent with the goals of the legislation; and (3) EPA can assist the states with enforcement and/or technical assistance at a state’s request.

2. The Honorable Henry A. Waxman Questions

NOTE: Many of the following questions address existing TVA facilities. TVA has committed to close existing CCR impoundments through a conversion to dry ash management. As TVA’s National Pollutant Discharge Elimination System (NPDES) permits are renewed, TDEC has or will include a requirement for ash pond closure plans to address the transition from a coal ash wastewater settling pond to a closed dry storage facility. Joint review and approval of the closure plans occurs between the TDEC Divisions of Solid Waste Management and Water Resources, which is the NPDES permitting authority.

Ash pond closure plans address the TVA process of conversion to a dry ash handling system and include a post-closure plan with a groundwater monitoring plan. The plan and NPDES permit

include continuing dike inspections to address dike safety and safe dams issues. Presently, TDEC has approved TVA Ash Pond Closure Plans for Bull Run and Johnsonville Fossil plants. The Ash Pond Closure Plan for the Gallatin Fossil plant is under review. TVA has not yet submitted Ash Pond Closure Plans for Kingston, Cumberland, and Allen Fossil plans because the NPDES permits have not been re-issued.

According to pollution monitoring conducted by the Tennessee Valley Authority (TVA) and released under the Freedom of Information Act, levels of arsenic, boron, and manganese at the Tennessee Valley Authority Allen Fossil Plant in Memphis, Tennessee, have exceeded the Maximum Contaminant Level, the EPA child health advisory, and the EPA lifetime health advisory respectively. Additionally, monitoring for those and other pollutants appears to have been infrequent.

- a. What action is your Department taking or will your Department commit to take to containing this contamination, and what is your timeline for doing so?**

The Allen Fossil plant (ALF) has no permitted landfill regulated under the Tennessee Solid Waste Disposal Act, but has a wastewater impoundment with a NPDES permit. TDEC understands TVA is currently evaluating the future operational status of ALF. The NPDES permit renewal for ALF remains under review. TDEC intends to include, in the renewed permit, a permit requirement for an Ash Pond Closure Plan, which will include a groundwater monitoring plan that includes the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. TVA has historically installed groundwater monitoring at ALF on a voluntary basis.

- b. What action is your Department taking or will your Department commit to take to assess and clean up this contamination, and what is your timeline for doing so?**

If the groundwater monitoring indicates chemical constituents above background levels, TVA would conduct groundwater assessment monitoring to determine whether an environmental release has occurred. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the Maximum Contaminant Level (MCL) for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment.

- c. What action will your Department take to ensure that monitoring of these wells in the future is adequate so that any future contamination is detected and addressed?**

As noted above, TDEC intends to include a requirement for an Ash Pond Closure Plan in the renewed NPDES permit, which includes continued groundwater monitoring pending ash pond closure. Post-pond closure, long-term monitoring will continue under provisions of the Tennessee Solid Waste Disposal Act.

At the TVA Bull Run Fossil Plant near Oak Ridge, Tennessee, monitoring has found high levels of arsenic, boron, cobalt, manganese, molybdenum, and sulfate. Rising levels of boron

and molybdenum were documented for some time, but TVA has since stopped monitoring for those pollutants.

a. What action is your Department taking or will your Department commit to take to containing this contamination, and what is your timeline for doing so?

The Bull Run Fossil plant has both a permitted fly ash landfill regulated under the Tennessee Solid Waste Disposal Act and a wastewater impoundment with a NPDES permit. Under the NPDES permit for ash pond discharges, TDEC has approved the TVA 2011 Ash Pond Closure Plan, which includes a groundwater monitoring plan that has the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. The chemical cleaning pond has been closed. Fly ash is currently managed in a dry ash landfill. To complete conversion to dry ash handling, bottom ash and gypsum dewatering projects are scheduled for completion during 2015. To address ash pond stability, TVA completed, in 2013, the dike remediation at the ash pond and dry fly ash stack, including the ash pond spillway modification and a 7200 ft shoreline stabilization.

b. What action is your Department taking or will your Department commit to take to assess and clean up this contamination, and what is your timeline for doing so?

Pursuant to the Tennessee Solid Waste Disposal Act, the landfill is monitored by a groundwater monitoring program with a sampling plan that stipulates the chemical constituents to be monitored and the frequency of monitoring that is the equivalent to RCRA Subtitle D requirements. The landfill is currently in assessment monitoring, which means ground water results have indicated constituents above background levels. The Groundwater Protection Standard (e.g., the MCL) has not been exceeded. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment. TVA has historically installed groundwater monitoring at the impoundment on a voluntary basis.

As noted above, TDEC has approved the TVA 2011 Ash Pond Closure Plan, which includes a groundwater monitoring plan that has the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. If the groundwater monitoring indicates chemical constituents above background levels, TVA would conduct groundwater assessment monitoring to determine whether an environmental release has occurred. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment.

What action will your Department take to ensure that monitoring of these wells in the future is adequate so that any future contamination is detected and addressed?

The landfill permit requires 30 years of post-closure care and monitoring. If a Groundwater Protection Standard is exceeded, the process described above would occur. Current NPDES permit requirements include continued groundwater monitoring pending ash pond closure. After ash pond closure, long term monitoring will continue under provisions of the Tennessee Solid Waste Disposal Act.

At the TVA Cumberland Fossil Plant in Cumberland City, Tennessee, monitoring has found high levels of arsenic, boron, cobalt, manganese, molybdenum and sulfate. Cobalt levels have been documented as high as ten times the Regional Screening Level and manganese levels have been documented as high as 100 times the health advisory level.

a. What action is your Department taking or will your Department commit to take to containing this contamination, and what is your timeline for doing so?

The Cumberland Fossil plant (CUF) has both a permitted landfill regulated under the Tennessee Solid Waste Disposal Act and a wastewater impoundment with a NPDES permit. The NPDES permit renewal for CUF remains under review. TDEC intends to include, in the renewed permit, a permit requirement for an Ash Pond Closure Plan, which will include a groundwater monitoring plan that includes the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. TVA has historically installed groundwater monitoring at the impoundment on a voluntary basis. Fly ash is currently managed in a dry ash landfill. To complete conversion to dry ash handling, bottom ash and gypsum dewatering projects are scheduled for completion during 2020, according to TVA. To address ash pond dike stability, TVA is nearing completion, in 2013, for the remediation of the gypsum/dry stake dikes and stilling pond spillway replacement.

b. What action is your Department taking or will your Department commit to take to assess and clean up this contamination and what is your timeline for doing so?

Pursuant to the Tennessee Solid Waste Disposal Act, the landfill is monitored by a groundwater monitoring program with a sampling plan that stipulates the chemical constituents to be monitored and the frequency of monitoring that is the equivalent to RCRA Subtitle D requirements. The landfill is currently in assessment monitoring, which means ground water results have indicated constituents above background levels. The MCL has occasionally been exceeded; however, required analysis has demonstrated it has not been exceeded statistically. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the Maximum Contaminant Level for drinking water), the permit requires TVA to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment.

For the impoundment, as noted above, TDEC intends to include the requirement for an Ash Pond Closure Plan, which includes a groundwater monitoring plan that has the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. If the groundwater monitoring indicates chemical constituents above background levels, TVA would conduct groundwater assessment monitoring to determine whether an environmental release has occurred. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g.,

the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment.

c. What action will your Department take to ensure that monitoring of these wells in the future is adequate so that any future contamination is detected and addressed?

The landfill permit requires 30 years of post-closure care and monitoring and the above noted processes depending on the level of constituent detection. With regard to the impoundment, TDEC intends to include the NPDES requirement for an Ash Pond Closure Plan, which includes groundwater monitoring pending ash pond closure. After pond closure, long term monitoring will continue under provisions under the Tennessee Solid Waste Disposal Act.

At the TVA Gallatin Fossil Plant in Gallatin, Tennessee, monitoring around an abandoned ash pond has shown contamination with aluminum, beryllium, boron, cobalt, manganese, mercury, nickel, and sulfate.

a. What action is your Department taking or will your Department commit to take to containing this contamination, and what is your timeline for doing so?

The Gallatin Fossil plant has both a non-registered, closed impoundment (referred to in the questions as an “abandoned ash pond”) and a wastewater impoundment with a NPDES permit. The closed impoundment has not operated since the 1970s and contains sluiced coal ash. Under the NPDES permit for ash pond discharges, TDEC is reviewing TVA’s 2012 Ash Pond Closure Plan, which includes groundwater monitoring for the active ash pond area only. To complete conversion to dry ash handling, TVA has scheduled fly ash and gypsum projects (using a dry scrubber) for completion in 2017. Conversion of bottom ash to dry handling is proposed during 2019. To address ash pond dike stability, TVA proposes dike remediation and a spillway upgrade stabilization for completion during 2015.

b. Are the Department’s authorities the same with respect to abandoned ash disposal sites as they are for active disposal sites? If not, how do they differ?

“Abandoned ash disposal sites” were never issued a permit under the Tennessee Solid Waste Disposal Act, but come under the provisions of the Act as unregistered disposal sites. Therefore, TDEC has the authority to require environmental investigation and clean-up pursuant to the Solid Waste Disposal Act. TVA has voluntarily installed groundwater monitoring at this site. TVA samples twice per year and submits the results to TDEC’s Solid Waste Division. The monitoring is similar to the requirements for groundwater monitoring required at permitted Class I and II landfills.

c. What action is your Department taking or will your Department commit to take to assess and clean up this contamination, and what is your timeline for doing so?

For the active impoundment, as noted above, TDEC is reviewing the Ash Pond Closure Plan, which includes a groundwater monitoring plan that has the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. If the groundwater

monitoring indicates chemical constituents above background levels, TVA would conduct groundwater assessment monitoring to determine whether an environmental release has occurred. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment. The same process would apply to the unregistered, closed impoundment. The current well network for the unregistered, closed impoundment is the equivalent of assessment monitoring, which means constituents have been detected above background levels.

d. What action will your Department take to ensure that monitoring of these wells in the future is adequate so that any future contamination is detected and addressed?

With regard to the impoundment, TDEC is reviewing TVA's Ash Pond Closure Plan, which includes groundwater monitoring pending ash pond closure. After pond closure, long term monitoring will continue under provisions under the Tennessee Solid Waste Disposal Act.

At the TVA Johnsonville Fossil Plant in Waverly, Tennessee, monitoring at an active ash disposal site has shown contamination with boron, cobalt, manganese, and sulfate. The same contaminants have been show in monitoring of a closed disposal site, with cobalt levels as high as ten times the Regional Screening Level. Another closed Disposal at the plant is not monitored.

a. What action is your Department taking or will your Department commit to take to containing this contamination, and what is your timeline for doing so?

According to TVA, the Johnsonville Fossil plant will be retired by 2017. The plant has two unregistered disposal sites and a permitted landfill, which is regulated under the Tennessee Solid Waste Disposal Act. The plant also has a wastewater impoundment with a NPDES permit. Both the unregistered disposal sites and the landfill are closed. One of the unregistered disposal sites has a monitoring system in place and TDEC understands TVA is developing one for the other. Under the NPDES permit for ash pond discharges, TDEC has approved TVA's 2011 Ash Pond Closure Plan, which includes groundwater monitoring. The chemical cleaning pond has been closed. To address ash pond dike stability, TVA completed dike remediation at the ash disposal area 2 and the causeway buttress in 2013.

b. Are the Department's authorities the same with respect to abandoned ash disposal sites as they are for active disposal sites? If not, how do they differ?

See the answer above for the same question with regard to the Gallatin Fossil plant.

c. What action is your Department taking or will your Department commit to take to assess and clean up this contamination, and what is your timeline for doing so?

Pursuant to the Tennessee Solid Waste Disposal Act, the landfill is monitored by a groundwater monitoring program with a sampling plan that stipulates the chemical constituents to be monitored and the frequency of monitoring that is the equivalent to RCRA Subtitle D requirements. The landfill is currently in assessment monitoring, which means ground water results have indicated constituents above background levels. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment. The process for the unregistered sites would be the same, although one does not currently have monitoring.

For the impoundment, as noted above, TDEC has approved the Ash Pond Closure Plan, which includes a groundwater monitoring plan that has the location of the groundwater monitoring wells, chemical constituents to be monitored and the frequency of the monitoring. If the groundwater monitoring indicates chemical constituents above background levels, TVA would conduct groundwater assessment monitoring to determine whether an environmental release has occurred. If a chemical constituent statistically exceeds the Groundwater Protection Standard (e.g., the MCL for drinking water), TVA is required to begin an environmental investigation and conduct environmental remediation to resolve the problem. An environmental cleanup would take into consideration the level and extent of soil and groundwater contamination, the site conditions and the exposure hazards to local citizens and the environment.

d. What action will your Department take to ensure that monitoring of these wells in the future is adequate so that any future contamination is detected and addressed?

The landfill permit requires 30 years of post-closure care and monitoring. Current NPDES permit requirements include continued groundwater monitoring pending ash pond closure. After pond closure, long term monitoring will continue under provisions of the Tennessee Solid Waste Disposal Act.

At the Kingston Fossil Plant, site of the 2008 catastrophic impoundment failure, monitoring continues to show contamination with cobalt, manganese, and selenium.

a. What action has your Department taken to address the root causes of the 2008 failure?

See answer to question 1.b in response to a question posed by the Honorable John Shimkus above.

b. What action has your Department taken to address ongoing contamination at the site?

TDEC, EPA and TVA analyzed the TVA Kingston ash to determine if it should be managed as a hazardous waste. Ash was analyzed for metals, polynuclear aromatic hydrocarbons, radioactive substances and other chemicals constituents. Samples were analyzed for total amounts in the ash and using the EPA Toxicity Characteristic Leaching Procedure. None of the samples analyzed had levels of chemical constituents that would classify the ash as a hazardous waste. TDEC recognizes that the

ash is exempted as a hazardous waste currently under the Bevill Amendment; however, even if the Bevill amendment was not in place, the ash did not meet any of the characteristics of a hazardous waste under RCRA Subtitle C.

Over 90% of the ash that entered the Emory River and its tributaries (more than 3.5 million yd³) has been removed and disposed. EPA, TVA and TDEC are determining whether it is appropriate to remove the remaining ash given the impact the removal will have on fish and aquatic life. The ash remaining in the river does not present a toxicity hazard to fish and aquatic life. The impact of the ash release when it first occurred was primarily to “smother” fish and aquatic mechanisms.

Currently, TVA is preparing an on-site CERCLA disposal cell that will be used to dispose of the remaining ash on the land surface. The remaining ash, more than 2 million yd³, will be placed in a structurally reinforced disposal cell. The disposal cell will include a subsurface perimeter wall that is approximately 30 ft wide and ranges from 30 to 70 feet in depth. The purpose of the subsurface wall is to ensure there are no further releases due to seismic activity. The CERCLA cell will have a synthetic liner at the surface to prevent migration of surface water into the ash disposal cell as well as a standard Subtitle D Municipal Solid Waste Landfill soil cover. Ground water monitoring wells will be located around the landfill with samples taken twice per year to detect any releases should they occur.

At this time more than 60% of the ash has been properly disposed. It is estimated that it will take 4 to 5 more years complete the clean-up. The primary control factor for time to completions is the successful construction of the subsurface wall around the perimeter of the CERCLA disposal cell.